

- (41) Little Tern (*Sterna minuta*).
- (42) Gull-billed Tern (*Sterna anglica*).
- (43) Yellow-legged Herring-Gull (*Larus cachinnans*).
- (44) Great Crested Grebe (*Podiceps cristatus*)

N.B.—I did not personally find the nest of a Great Bustard, but the fresh egg of one of these birds was brought to me during my visit to Appa; it had been taken from a cornfield in the plain near the station.

XXIV.—*An Ornithological Expedition to the Zambesi River.*

By BOYD ALEXANDER, F.Z.S.

[Concluded from p. 109.]

165. INDICATOR SPARRMANI Steph.

This Honey-guide was first met with near Zumbo, and became more plentiful further up the river, especially in well-wooded districts, where we observed it in small parties that kept much to the tops of high trees. In December they were in a moulting condition. The natives disapproved very much of our shooting these birds, which, they said, often enabled them to find the nests of bees. There appears to be some truth in this, when the following incident is considered. On October 7 we landed on a small well-wooded island, which we commenced to explore. On the ground, under a thicket, one of these Honey-guides was observed busily but silently searching after food. We shot the bird, not knowing, however, what it was at the time, and as the thicket was almost impenetrable we sent in one of our native boys to get the specimen. Meanwhile we had left the spot and were continuing our investigation of the small island, but on looking back a short time afterwards we found that our boys were not following us. Eventually, on retracing our steps, we discovered them on their hands and knees about twenty paces from the place where we had shot the Indicator. A fire had been lighted, while one of them was busy with his axe unearthing something from the ground. This proved to be a big bees'-nest. Our boys made short work of the black-looking honey, large pieces with grubs

and all disappearing down their throats, greatly to our amusement.

It therefore appears that the presence of this bird under certain conditions (this instance, for example) affords the native a clue as to the whereabouts of honey; but the belief that the birds of this genus will actually guide the traveller to bees'-nests, and even to dangerous places such as the lair of the leopard or lion, seems to be one of the fallacies of popular natural history, having chiefly emanated from hunters and explorers.

I do not remember skinning tougher birds; it was next to impossible to tear the skin, which, when dry, became like stiff parchment.

We procured a good series of this Indicator, which is by no means demonstrative; the note is nearly always uttered on the wing. A male shot on October 27 has the upper parts and the dark portions of the tail-feathers ashy brown, while the feathers are much abraded, especially those of the greater and lesser wing-coverts. The bill is whitish horn-colour. At the end of December, the specimens obtained were in the process of moult. The new feathers of the upper parts and tail are dark brown, contrasting strongly with the old bleached ashy-brown feathers, and imparting to the upper parts a very mottled appearance. The bills are brownish horn-colour. The sexual organs of these specimens were approaching a breeding condition.

166. INDICATOR MAJOR Steph.

The only specimen obtained was a female, which corresponds with one in the British Museum, from Fort Chiquaquu, Mashonaland. These specimens have no black on the chins and throats, but otherwise are similar in plumage to the adult male of this species. Nearly all the specimens in the British Museum are immature males, with the feathers of the chin and throat showing signs of becoming black. It is quite possible, however, that the above-mentioned female specimens may be immature, and that both sexes when fully adult have the black chin and throat.

167. INDICATOR BARIANUS.

Indicator bariamus Heugl., Syst. Uebers. p. 48 (1856); Sharpe in Rowley's Orn. Misc. i. p. 203, pl. upp. fig. (1876).

Indicator bahmi, Rehw. J. f. O. xxxix. p. 39 (1891).

Found on the higher reaches of the river, but not so numerous as the preceding species.

Our three specimens, obtained at the end of December, are in magnificent plumage. The whole of the underparts are suffused with yellow, brighter on the chin, throat, and fore-neck, while the feathers of the upper parts are washed with olive-yellow, becoming more distinct on the crown. The sexes are alike in plumage, our specimens, by dissection, being two males and a female.

In the Cat. B. B. M. vol. xix. p. 7, this bird is erroneously arranged as the female of *I. major*.

The following specimens of *I. bariamus* are in the British Museum;—

Ad. sk. without locality (*H. Seeborn*).

2 ad., 1 imm. sk. Zambesi (*Bradshaw*).

Ad. ♀. Wadelai (*Emin Pasha*).

Ad. sk. Mombasa (*R. B. Sharpe*), figured in Rowley's Orn. Misc.

The immature birds of this species have little or no yellow on the underparts, the whole, with the exception of the fore-neck, being pale white. They can at all times be distinguished from those of *I. major* by the olive-yellow shade on the upper parts, and the more slender bill, which is black.

Adult ♂ (above Zumbo, Dec. 24, 1898). Iris brown, bare skin round eyes bluish white; bill dark brown; legs and feet greenish slate-colour.

Total length (measured in the flesh) 8 inches, wing 4·5.

Adult ♀ (above Zumbo, Dec. 12, 1898). Total length (measured in the flesh) 7·2 inches, wing 4·2. Coloration of soft parts as in the male.

168. MELANOBUCCO TORQUATUS (Dumont).

A rather scarce bird and of a retiring nature. We occasionally met with it along the river, obtaining our last specimen at Zumbo on Dec. 13.

169. *BARBATULA EXTONI* Layard.

Adult ♀ (near Zumbo). Total length (measured in the flesh) 4·3 inches, wing 2·3. Bill black; iris brown; legs and feet black.

170. *TRACHYPHONUS CAFER* (Vieill.).

Common. Observed either singly or in pairs. In the pairing-season, towards the end of November, the males were to be heard constantly in the woods. The song, if it can be called one, is uttered from the tops of tall trees, and consists of a string of trilling notes that are at first given out very softly, sounding somewhat ventriloquial, and remind one forcibly of those of the Grasshopper Warbler, then towards the finish they become very loud and well-marked, exactly like the clicks of a mowing-machine.

171. *CAMPOTHERA SMITHI* (Mall.).

Not common. First met with near Zumbo. A female obtained on November 23 had sexual organs in breeding condition.

Adult ♂. Total length (measured in the flesh) 7·43 inches, wing 4·5. Iris light claret-colour; legs and feet brownish green.

172. *CAMPOTHERA BENNETTI* (Smith).

Scarce. *Adult* ♀. (near Kafue river, Dec. 27). Total length (measured in the flesh) 8·2 inches, wing 4·5, culmen 1, tail 3·1. Iris reddish brown.

173. *DENDROPICUS CARDINALIS* (Gm.).

Common. Our specimens agree in measurements and size with the Nyasaland birds from Zomba, Itawa, and Songwe.

The range of this species is from Cape Colony to the Rovuma river and Songwe on the east, on the west through Great Namaqualand, Damaraland, and in Angola north to the Quanza river.

174. *THRIPIAS NAMAQUUS* (Licht.).

The common Woodpecker of the Zambesi region.

When working the woods hardly a day passed without our

observing at least one or two individuals of this species. It is not at all shy, and resembles the Green Woodpecker in its alarm-note and flight. When the first rain was experienced (Nov. 20), being rapidly followed by a general bursting out of leaf, a remarkable increase in the numbers of these birds took place. They were full of activity, the sound of their drilling taps against the hollow branches disturbing the great silence of the woods.

We procured a good series. In some specimens the iris was hazel, in others red. A female (by dissection) obtained on Dec. 26 has some of the feathers of the crown tipped with scarlet.

175. *TURTUR SEMITORQUATUS* (Rüpp.).

Common in suitable localities where there are extensive stretches of waste land near the river.

We often found this Pigeon in company with *T. damarensis*.

176. *TURTUR DAMARENSIS* Finsch & Hartl.

Common.

177. *TURTUR SENEGALENSIS* (Linn.).

Fairly plentiful, and found chiefly frequenting marpela-fields near the native villages. The coo of this Dove is very loud, and might be described by the syllables "kuk-kuk-koo."

Adult ♂ (Chicowa). Iris black; legs and feet claret-red.

Adult ♀ (Tete). Iris hazel; legs and feet purplish-red.

178. *CHALCOPELIA AFRA* (Linn.).

Ubiquitous.

179. *ÆNA CAPENSIS* (Linn.).

Of local distribution, but fairly numerous in suitable localities, especially on waste land near the river.

The vicinity of water is essential to this species. Breeds in September.

The note of the male is soft and musical, and might be rendered by the syllables "tui-tui-teu," constantly repeated.

Adult ♂ (Chicowa). Total length (measured in the flesh)

9·75 inches, wing 4·1. Iris black; bill, tip orange-yellow, base claret-colour; legs and feet dark brown.

We found these birds most difficult to skin, quite as bad as the Trogons.

180. *PŒOCEPHALUS MEYERI* (Rüpp.).

Pæocephalus meyeri erythreæ, Oscar Neumann, Ornith. Monatsberichte, vii. p. 2 (1899).

Pæocephalus meyeri transvaalensis, id. ibid.

Fairly plentiful from Tete onwards. Observed generally in companies, but now and again in couples, frequenting the wooded banks of dried-up watercourses dotted with pools. At the end of August this species was breeding, when all the males kept company together.

After a careful examination of our series and of the fine material in the British Museum, we are unable to recognize the validity of the two subspecies.

According to Mr. Oscar Neumann, the characteristics of *P. m. erythreæ* (from Kokai) are: (1) a bluish sea-green rump; (2) upper parts washed with olive-green. Of *P. m. transvaalensis*: (1) a slight olive-green wash on the upper parts; (2) a little larger wing-measurement.

Among the fine series of *P. meyeri* in the British Museum there are eight specimens obtained at Kokai (Jesse & Blanford).

All of these birds were killed in the same month (July 1868), within a day or two of each other, and are without doubt freshly-moulted birds. The upper parts have a distinct olive-green wash, and the rump and underparts are bluish green. In this plumage they are typical of *P. erythreæ*.

In the same collection there are also specimens of *P. meyeri*, obtained in the Transvaal in July (*Ayres*). They belong to the subspecies *P. transvaalensis*. These, again, are freshly-moulted birds, and are identical with those obtained at Kokai, except that the olive-green wash on the upper parts is a little less strong.

Five specimens in our series, killed at the end of August onward, as well as others from the Zambesi in the British

Museum, agree very closely with the Transvaal birds, but the rumps are of a clear blue, and the upper parts have become brown, except that a few freshly-moulted feathers are distinctly washed with olive-green, as in the Transvaal specimens. On the other hand, we have a specimen in our series in fresher plumage, and identical in every respect with the Kokai birds. It therefore appears that in all freshly-moulted birds of *P. meyeri* the upper parts have a distinct wash of olive-green, while the coloration of the rump and underparts is made up of the compound colour, bluish green. Under the influence of a tropical sun the tendency in plumage is to become brighter.

Therefore we contend that in both the freshly-moulted specimens from the Transvaal (*P. transvaalensis*) and Kokai (*P. erythreæ*) the coloration of the rump has no typical value, since the primary blue, a decidedly stronger colour in this instance, would under the above-mentioned influence gradually predominate and eliminate the yellow tint, causing the bluish green. This also applies to the coloration of the underparts. Again, the olive-green wash on the upper parts of the freshly-moulted specimens, being a sensitive colour, would gradually disappear through bleaching, leaving the feathers a uniform dark brown.

In the series in the British Museum there is every gradation of shade to be found between the blue of our adult birds (Zambesi) and the bluish green of the Kokai specimens. Regarding wing-measurements, there is a very slight difference between the northern and southern birds; the latter, however, are generally slightly larger, but this is not always constant.

181. PŒOCEPHALUS sp. inc.

At rare intervals we came across another Parrot, similar to the preceding one, but easily distinguishable when on the wing by its considerably larger size, and the note also was very much louder. We first observed it near Tete, but failed to procure specimens, owing to its shy and wild nature.

182. AGAPORNIS LILIANÆ Shelley.

This pretty Love-bird is decidedly rare, having a very limited range along the river.

We met with it first near Chicowa, again at Chishomba, some thirty miles further up the river, and lastly at Zumbo. This Parrakeet frequented enclosed country overgrown with mimosa-bush, in flocks which sometimes numbered as many as twenty birds, the majority of which were males.

At Zumbo this species was fairly numerous within a small area of country, outside of which it was not to be found. Throughout the day small flocks would continually visit the water and travel back again, the same way as they had come, to some thick retreat among the undergrowth of acacia, and in their journey they were ever uttering their rounds of cries, almost in unison, but so shrill that they almost set one's teeth on edge.

A half-easte at Matacania, just below Zumbo, had a number of these Love-birds in an aviary. They did not seem to mind confinement.

This species was described by Capt. Shelley (*Ibis*, 1894, p. 466, pl. xii.) from specimens collected by Mr. Alexander Whyte at Fort Liwondi, Upper Shiré river. Sir John Kirk appears also to have met with the species, of which he writes:—"Found in one spot, limited to about 20 miles, on the Shiré river, between Nyasa and the rapids. It was never seen elsewhere, but was found there on two occasions. It is gregarious" (*Ibis*, 1864, p. 329). It is closely allied to *Agapornis fischeri* from the Victoria Nyanza; the latter is figured by Reichenow in the *J. f. O.* 1889, t. iv. f. 1.

Agapornis lilianæ differs principally in having the crown and occiput brick-red in place of dull olive-green; the nape greenish yellow, and not reddish yellow; the upper tail-coverts green, like the back, instead of ultramarine-blue; tips of the tail-feathers green, not blue.

We obtained a good series, four males and two females.

Adult ♂ (Zumbo, Nov. 9). Total length (measured in the flesh) 5·2 inches, wing 3·45 (wing 2·7? Shelley, *Ibis*, 1894, p. 466), culmen 0·06, tarsus 0·05. Bill rose-colour; base

of upper mandible and soft parts round eye bluish flesh-colour; iris hazel; legs and feet flesh-colour.

Adult ♀ (Chicowa). Total length (measured in the flesh) 5·5 inches, wing 3·5, culmen 0·06, tarsus 0·05. Soft parts as in male.

The female differs from the male in having the head and throat slightly paler in coloration.

Hab. Upper Shiré and Zambesi rivers.

183. *ASIO CAPENSIS* (Smith).

Only once met with, among long grass near Senna. Previously Sir John Kirk obtained a specimen at Shupanga.

Adult ♂. Total length (measured in flesh) 15 inches, wing 11·6. Iris brown.

184. *SYRNIVM WOODFORDI* (Smith).

An adult female, obtained out of a pair in thick wood beyond Zumbo.

Adult ♀ (Dec. 23, 1898). Total length (measured in the flesh) 14·5 inches, wing 10·4. Iris black; bill yellowish horn-colour; feet yellow.

185. *GLAUCIDIUM PERLATUM* (Vieill.).

Fairly common, and found in pairs frequenting hilly country overgrown with *Copaifera mopane*. They seem quite as much alert during the daytime as in the dusk. We used frequently to come across pairs sitting close together on a branch of some leafless tree, with eyes wide open, in the broad sunlight.

We procured four specimens, three of which, obtained in the middle of October, had the sexual organs in breeding condition: the fourth specimen, killed on Nov. 22, is an immature bird; the mantle is considerably darker than in our adults and is far less spotted; the under wing-coverts and feathers of the thighs are rufous, the chin and throat also being washed with the same colour. These parts in the adults are white.

Adult ♂. Total length (measured in the flesh) 7·2 inches, wing 4. Iris yellow; bill yellowish horn-colour.

Adult ♀. Total length (measured in the flesh) 7 inches wing 4·2. Coloration of soft parts as in male.

The specimens in our series differ little in plumage, with the exception of the number of white spots on the tail-feathers, which in some specimens number five, in others four.

186. *GLAUCIDIUM CAPENSE* (Smith).

Scarce. Our four specimens were obtained between Tete and Chishomba. These are very fresh in plumage, and agree with specimens in the British Museum from the Upper Shiré river. In our specimens the crown and nape are a light brown beautifully barred with white, forming, as it were, a distinct hood, contrasting strongly with the mantle; the terminal spots to the feathers of the belly and flanks are a rich brown. The type of this species in the British Museum (*Sir A. Smith*) is distinctly more rufous and darker in general coloration than our specimens, and the bars on the tail (14, including the terminal one) are very narrow. This is without doubt an immature bird. In our specimens the bars on the tail-feathers vary in number *inter se*. Consequently this point cannot be looked upon as of any specific value.

Adult ♂ (Aug. 19, 1898). Wing 5·4 inches, tail 3·3. Iris yellow; bill yellowish horn-colour; 12 bars (0·01 in thickness) on tail, including terminal one.

Adult ♂ (Aug. 20, 1898). 14 bars (0·01 in thickness) on tail, including terminal one.

Adult ♂ (Oct. 17, 1898). 13 bars (0·01 in thickness) on tail, including terminal one, the three lowest bars becoming white.

Adult ♀ (Oct. 17, 1898). Wing 5·6 inches, tail 3·5. Soft parts as in male; 14 bars (0·01 in thickness) on tail, including terminal one, the six lowest bars becoming white.

187. *SCOPS LEUCOTIS* (Temm.).

Three specimens obtained at Chicowa: a pair and a young bird with the feathers emerging from the down. (Sept. 21, 1898.)

Adult ♂. Total length (measured in the flesh) 10·5 inches, wing 8. Iris orange.

Adult ♀. Total length (measured in the flesh) 10·34 inches, wing 7·5. Iris orange.

188. *SCOTOPELIA PELI* Bp.

Rare. Observed only on three occasions. Thick deciduous trees in the vicinity of the river were the daytime-retreat of this Owl. Our specimen belongs to the pale race.

Adult ♂ (near Zumbo). Culmen 2·3 inches, wing 18·4, tail 10·8, tarsus 2·9. Iris dark brown; bill dark bluish horn-colour; legs and feet whitish flesh-colour.

189. *FALCO RUFICOLLIS* Swains.

These birds were very numerous at Chicowa, haunting the great stretches of the old marpela-fields, where locusts formed their principal food.

Adult ♂ (Chicowa, Sept. 3, 1898). Total length (measured in the flesh) 10·9 inches, wing 8·2.

Immature ♀ (Chicowa, Jan. 24, 1899). Crown of head and a conspicuous nuchal patch blackish, the feathers edged with chestnut; feathers below the eye, moustache, and eye-brow black; forehead, as well as the sides of the face, neck, and throat, creamy white; hind-neck pale chestnut; remainder of upper parts as in the adult, but interscapulary region greyish black, feathers margined with rufous, also those of the least and greater wing-coverts, mantle and rump; ends of primaries and secondaries conspicuously edged with white. Under surface creamy buff, becoming stronger on the belly and thighs; feathers of the chest with dark rufous shafts; remainder of underparts irregularly barred with blackish brown.

190. *FALCO SUBBUTEO* Linn.

An immature male on Jan. 10, 1899.

191. *FALCO DICKINSONI* Selater.

Three adult specimens of this rare species were obtained near Tete at the end of August.

Adult. Total length (measured in the flesh) 11·85 inches,

wing 9, tail 6. Iris brown; bill bluish black; soft parts yellow; legs and feet yellow.

192. *ELANUS CÆRULEUS* (Desf.). Common.

193. *MILVUS ÆGYPTIUS* (Gm.).

This Kite is well distributed, every native village being watched over by one or more pairs. Their numbers increase, however, in the locality on an advent of a swarm of locusts, a food these birds are passionately fond of. Lizards and mice are also preyed upon, these being devoured when on the wing, while it is not an uncommon thing to see a large whip-snake taken, 2 to 3 feet in length, and as the bird mounts into the air, the snake, hanging down like a length of stout thread, often wriggles loose from the strong claws, but only to drop heavily to the ground, hardly reaching it, however, before its enemy, in one fell swoop, has again transfixed it. Scarcely a day passed without our tent being visited by two or more of these rapacious birds, which at times waxed so bold as to swoop down in front of our skinning-table and carry off the birds we happened to let drop, while on more than one occasion the bodies were those of their own fraternity. During the breeding-season, in September, it is rare to meet with a female, and a long time elapsed before we obtained one. At that season we continually came across parties of males basking leisurely in the full glare of the sun on sand-banks in mid-stream.

This Kite nests on the rocky clefts of high hills, but on one occasion we found a nest in one of the topmost forks of a tall acacia-tree, around which the two birds were circling. It was a solid, compact structure of stieks, and about 40 feet up. When wheeling and circling round the female, the male uttered from time to time shrill mew-like cries.

In the adult male the bill is yellow, in the female it is always black.

194. *HALIAËTUS VOCIFER* (Daud.).

Wherever the river flowed through wooded country we frequently observed specimens of this magnificent Fishing-Eagle, either singly or in pairs, sitting lazily in the glare of

the sun on the naked boughs of dead trees close to the water or on snags in mid-stream, the predominant white of their breasts betraying their presence a great distance off, long before their forms became visible to the naked eye. Of a confiding nature, this Eagle allows of a close approach, welcoming the traveller with a beautiful clear-noted cry, which reverberates through the deep and rocky places of the river's vicinity, and is uttered with swelling throat and head well thrown back. When unnecessarily disturbed the cry becomes almost painful, resembling that of a captured fowl.

Regarding food, this bird is somewhat fastidious, often catching a fish merely to drop it again, or to play with it by tearing the body rapidly to pieces. When once the fish is dropped, it is rarely picked up again. The native knows this, and often watches the bird for the sake of the discarded prey. On one occasion one of our boys ran to the spot where a Fishing-Eagle was sitting, and brought back a good-sized fish weighing nearly two pounds. With the approach of the rainy season, when the river begins to rise, the number of this species becomes greatly augmented, and more than once we met with quite a flock of them, among which were several in the immature brown plumage.

During our short stay at Chinde, in July, the British Consul gave us a magnificent adult which he had kept in confinement for some time. He was only too glad to get rid of it, since its food cost him a good many fowls a week, and although he had already released it, the bird refused to leave its comfortable quarters for long, but returned again the next day. The Consul told us that this Eagle was quite as good as a watch-dog, for if any strangers approached the house the bird immediately gave vent to vociferous cries.

195. *HELOTARSUS ECAUDATUS* (Daud.).

Adult ♂ (Chicowa, Sept. 16, 1898).

This Eagle now and again used to take bird's-eye views of our camps, circling high overhead with a graceful flight, the deep black of its under surface contrasting strongly with the white of its under wings.

196. *CIRCAËTUS CINEREUS* Vieill.

This species is very Buzzard-like and sluggish in its flight, flying, as a rule, much higher than the undergrowth.

Adult ♂ (Mesanangue, Sept. 9, 1898). Total length (measured in the flesh) 30 inches, wing 22. Weight 3 lbs. Iris yellow; legs and feet whitish flesh.

Immature ♀ (Mesanangue, Aug. 26, 1898). Total length (measured in the flesh) 29·5 inches, wing 22·5. Iris yellow; legs and feet flesh colour.

The crop of this last bird contained two large snakes, one measuring 40·5, the other 43 inches, and nearly 1 inch in diameter.

197. *ASTURINULA MCGNOGRAMMICA* (Temm.).

An adult female below Tete, Aug. 6, 1898.

198. *MELIERAX GABAR* (Daud.).

Fairly common. Observed chiefly at dusk, swooping with a rapid flight in and out of the patches of fish-cane, now and again to enter them and cause consternation among the flocks of half sleepy Weavers there for the night.

Adult ♂ (near Tete, Aug. 6, 1898). Iris bluish black; bill black, base coral-red; legs and feet coral-red.

Adult ♀ (Kafue river, Dec. 28, 1898). Iris red; bill black, base orange-red; legs and feet orange-red.

Immature ♂ (Chicowa, Oct. 6, 1898). Iris orange-yellow, cere and base of bill yellow; legs and feet orange-yellow.

199. *ASTUR POLYZONOIDES* (Smith).

Two adult males and two immature birds obtained. Preys a great deal upon the flocks of Weavers. One of our specimens was shot in the act of devouring a small Weaver (*Pyromelana sundevalli*).

The flight is erratic, which makes shooting it no easy matter, for the bird has a peculiar way of suddenly dipping just when shot at.

200. *ACCIPITER MINULLUS* (Daud.).

Fairly plentiful, frequenting the marpela-fields of the year before and waste places overgrown with reeds and fish-cane

near the river. The flight of this elegant little Hawk is full of swoops and curves. Locusts are preyed upon to a great extent.

Adult ♂ (Chicowa, Oct. 9, 1898). Total length (measured in the flesh) 9 inches, wing 5·4. Iris orange-red; eye-ring and base of upper mandible lemon-yellow; legs and feet yellow.

Adult ♀ (Chicowa, Oct. 9, 1898). Total length (measured in the flesh) 10·6 inches, wing 6·2. Coloration of soft parts as in male.

201. *CIRCUS MACRURUS* (Gm.).

An immature male at Chicowa, Oct. 14, 1898, and a female at Zumbo, Nov. 15.

Found on the low waste lands bordering the river, where it seeks its prey in early morning and again at dusk, remaining inert during the day on a shady branch of a thick tree, not far, if possible, from its hunting-grounds.

202. *POLYBOROIDES TYPICUS* Smith.

An immature female near Chishomba, Oct. 25, 1898. Iris brown; cere bluish flesh-colour; legs and feet yellow.

203. *SERPENTARIUS REPTILIVORUS* (Daud.).

We made our acquaintance with one in confinement at the Stores of the Zambesi Company, Zumbo.

204. *NEOPHRON PERCNOPTERUS* (Linn.).

Observed once on migration, Sept. 1. "A large flock, quite 100 in number, suddenly appeared at a great altitude this morning—white specks in the sky, as they circled in the sunlight."

205. *NEOPHRON PILEATUS* (Burchell).

The scarcity of Vultures along the river struck us as remarkable, since we expected to find every native village watched over by one or more of these birds; but no, the scavenger of the bird-world was conspicuous by its absence. The numerous pigs in the precincts of the native villages devour with avidity all the offal, and this is quite enough to account for the absence of the feathered scavenger. Our first sight of this species was at Matabania, just below Zumbo,

where we obtained one out of a pair on Nov. 27. After this date we occasionally saw small parties, evidently on migration southward, while on one occasion a big party suddenly appeared, as if from nowhere, and took up a position not far from the spot where some natives were busy cutting up a "hippo" that I had shot the day before. They kept at a respectful distance, watching with greedy curiosity the rows of biltong gradually lengthen as the natives plied the carcass with their knives and axes, but now and again one bolder than the rest would come forward and sneak off with a morsel, only, however, to be chased on return by the others with open wings.

Adult ♀ (Nov. 27). Iris bluish black. Soft parts bluish and purplish flesh-colour, with brighter patches of the latter colour round the eyes. Legs and feet bluish flesh-colour.

206. *HAGEDASHIA HAGEDASH* (Lath.).

Parties now and again observed roosting on leafless trees overhanging the river. Never seen singly.

207. *PLEGADIS FALCINELLUS* (Linn.).

Found on the lower reaches of the river in July.

208. *PLATALEA ALBA* Scop.

A party appeared on a stretch of low sand opposite Zumbo on Nov. 9.

209. *HERODIAS RALLOIDES* (Scop.).

Seen singly or in pairs, and first observed on Oct. 29 not far below Zombo. On Dec. 30, near the Kafue river, we passed through low, flat, reedy country. Here a fair number occurred, and there is not a doubt that a breeding-station existed somewhere in the locality.

An adult female obtained on Jan. 4 had the sexual organs in breeding condition. Iris lemon-yellow. Soft parts, legs, and feet greenish yellow.

210. *HERODIAS ALBA* (Linn.).

Solitary individuals frequently observed where the river was a mass of sandbanks. Towards evening this graceful Heron was to be seen travelling at a quiet pace along the

water's edge. The gait is ambling, the back being constantly jerked up and down in walking.

211. *HERODIAS GARZETTA* (Linn.).

Well distributed. "Jan. 12. A large flock of Egrets, some 50 in number. They kept flying a few yards ahead of our boat, always skirting the bank, where now and again they rested, their bodies making a startling contrast with the green leaf of the bushes and the reddish brown of the steep bank."

212. *ARDEA MELANOCEPHALA* Vig. & Child.

On the lower reaches of the river below the Shiré river.

213. *ARDEA PURPUREA* Linn.

Common. An immature male at Chicowa, Sept. 15.

214. *ARDEA GOLIATH* Rüpp.

By no means common. Roosts on trees in impenetrable marsh-land. We once disturbed a party at dusk. As they flapped away their gigantic size struck us immensely. We seldom saw these birds during the daytime, but towards evening solitary individuals would steal out on to the open sandbanks of the river.

215. *BUTORIDES ATRICAPILLA* (Afzel.).

A pair obtained near Zumbo on Nov. 1.

Adult ♂. Total length (measured in the flesh) 20·67 inches, wing 6·5. Iris yellow; upper mandible black, lower greenish yellow; tarsi and feet, upper surface dark green, under yellow, becoming brighter underneath feet.

Adult ♀. Total length (measured in the flesh) 19·67 inches, wing 6·4. Coloration as in male.

216. *NYCTICORAX GRISEUS* (Linn.).

Observed on the lower reaches of the Zambesi, near the Chindi river, where the country is very low and swampy, great stretches of reed-beds enclosing the river as far as the eye can reach. On several occasions we observed these birds travelling down the river on floating rafts of tangle and weed. They are sluggish birds, and seem to prefer this kind of travelling to that by flight. We constantly passed them

standing, all hunched up, on bushes overhanging the water, and so close that we could have knocked them over with sticks, but they took no notice of us.

217. *ARDETTA STURMI* (Wagl.).

Rare. A pair obtained close to Kafue river on Jan. 7, with sexual organs in breeding condition.

Adult ♂. Total length (measured in the flesh) 17·4 inches, wing 6·8. Iris red; soft parts bluish flesh-colour; legs yellowish; feet brown.

Adult ♀. Total length (measured in the flesh) 15·15 inches, wing 5·9. Coloration as in male.

218. *SCOPUS UMBRETTA* Gm.

An adult male, Chicowa, Sept. 15. Contents of stomach, tadpoles.

219. *CICONIA NIGRA* (Linn.).

Large parties observed on the sandbanks from time to time, especially in December. When feeding, their movements are extremely slow. No order is kept in the flock, and close formation is soon lost, each bird going its own way.

220. *MYCTERIA SENEGALENSIS* Shaw.

Single birds (adults) now and again seen, especially on the lower reaches of the river.

221. *PHALACROCORAX*, sp. inc.

A Cormorant observed on the Kafue river was generally glossy black and of larger size than *P. africana*; it was probably *P. capensis*.

222. *PHALACROCORAX AFRICANA* (Gm.).

Well distributed. All our specimens, killed in November and December, are in the non-breeding plumage. Out of the breeding-season these birds are generally to be observed in large parties, numbering sometimes as many as fifteen. This Cormorant swims very low in the water, its back being hardly seen; only a long neck is visible, giving one the idea of some water-snake rather than a bird, and as it travels down with the stream, the thin Darter-like neck is continually

being pushed into the water till fish is taken. It is a very careful bird and difficult of approach.

223. PELECANUS ONOCROTALUS Linn.

Found on the lower reaches of the river below the mouth of the river Shiré.

224. HYDROCHELIDON LEUCOPTERA (Meisner & Schinz).

Migratory on the Zambesi. First observed on Sept. 27 at Chicowa (a party of five). At Zumbo, on Nov. 11, for two days immense flocks kept passing down the river, mottling the air white with their bodies. Again, on Dec. 30 and Jan. 2, large flocks were observed beating down the river.

Three females obtained in winter-dress.

225. RHYNCHOPS FLAVIROSTRIS Vieill.

Not common. On the Chicowa flats we came across a small party breeding on a sandbank (Sept. 27). We found a nest containing three eggs (much incubated) in a deep capacious hole scratched in the sand.

Description of the eggs.—Average measurements 1.57×1.2 . Ground stone-colour, blotched and spotted all over with light umber-brown and underlying markings of purplish brown. These birds are fond of congregating over some pool towards nightfall, flying to and fro catching their prey.

The flight is steady, the wing-beats being very marked, the bird skimming the water the whole time.

The note is a loud, harsh "kip," constantly repeated.

226. LARUS CIRRHOCEPHALUS Vieill.

Single individuals frequently observed all along the river. On our way up to Chindi we saw big flocks at Durban, in Delagoa Bay, and at Inhambane.

Adult ♂ (Senna, July 25, 1898). Iris straw-colour; bill, legs, and feet dark crimson.

227. PHŒNICOPTERUS ROSEUS Barr.

Flocks seen in July on the Zambesi deltas, but not beyond the tide-influence. During our stay, on July 9, at Inhambane, Flamingoes were numerous. Towards evening, at low tide, a vast tract of land in the bay was the resort for flocks

of these birds. They were a perfect sight. In long lines, they kept creeping over the wet sand, neither turning to the right hand nor to the left, their long necks well craned down, all busy feeding, looking at a distance like so many cattle in the act of grazing. On starting for another feeding-ground they would all close up in a dense formation, while one bird advanced as the pioneer of the great band, and not till it had lowered its neck to feed on the new ground did the others dream of doing so. And when the heavy dusk came on they were still feeding.

228. *PLECTROPTERUS GAMBENSIS* (Linn.).

Small parties occasionally observed.

229. *SARCIDIORNIS MELANONOTA* (Penn.).

An adult male from a small brook near the Kafue river, on Jan. 8.

230. *DENDROCYCNA VIDUATA* (Linn.).

Seen now and again in large flocks, 15 to 20 in number. While at Zumbo we used to hear them at night, taking wide circuits inland from the river, keeping up the whole time a sibilant whistling.

They seem easily gulled, the natives catching a good number of them in very simple traps—a flat stone propped up by a stick, after the principle of a brick-trap.

Adult ♂ (Dec. 19, 1898). Iris black; legs and feet bluish slate-colour.

231. *CHENALOPEX ÆGYPTIACUS* (Linn.).

Common. Generally known as the "Zambesi Goose." It is often to be found in a domestic state in the native villages, but the white man abhors it, the meat being strong and as tough as leather. We met with a brood of 13 young ones on Oct. 25.

232. *PECILONETTA ERYTHORHYNCHA* (Gm.).

A specimen obtained out of a flock at Zumbo, Nov. 9. This was the only time we observed this species. Although it was the dry season and the river was full of sandbanks and pools,

the scarcity of Ducks and Geese seemed to us remarkable. We saw none of those "countless hundreds" that hunters and explorers are so fond of telling us about in order to hide their ignorance in ornithology.

233. *CREX PRATENSIS* Bchst.

An adult male (Matacania), Jan. 19. Among reeds near the river.

234. *LIMNOCORAX NIGER* (Gm.).

The beds of dried-up watercourses, where there are pools made secluded by tall reeds, are favourite resorts, each locality having its pair of these Rails. But the bird is shy and only to be observed in the early morning and evening, when it ventures out from the tangled depths of its thick retreat. When the breeding-season approaches (end of Nov.), this Rail becomes very noisy, constantly uttering its "cluck, cluck" notes; all the while beating time with the tail as it wends its way with dapper gait through the slender columns of the fish-cane, near the pool's edge.

Adult ♂ (Sept. 13, 1898). Total length (measured in the flesh) 8.4 inches, wing 4.2. Iris red; bill dark green; legs and feet brownish red, coral above knee.

Our three adult specimens are very much shaded with grey, while in two the legs and feet are light coral-red. We never observed this species on the river itself; it is essentially a pool-haunting bird. In the wet season, when the smaller watercourses are no longer dry, a migration, probably southward, takes place.

235. *TURNIX LEPURANA* (Smith).

Of local distribution, frequenting patches of thick, tall grass on low ground near the river. We obtained a fine series of this Quail—the first specimen at Senna, and the majority at Chieowa, where on Sept. 13 we procured a female with one nestling.

Adult. Iris straw-colour; bill lead-colour; legs and feet flesh-colour.

236. *COTURNIX DELEGORGUEI* Deleg.

By no means common. Found on open waste land, especially in old marpela-fields.

Adult ♂ (Kafue river, Jan. 5, 1898). Total length (measured in the flesh) 7·26 inches, wing 3·6. Iris brown; legs and feet flesh-colour.

Adult ♀ (Chicowa, Oct. 11, 1898). Total length (measured in the flesh) 8·65 inches, wing 3·8. Iris hazel; legs and feet flesh-colour.

237. *PTERNISTES SWAINSONI* (Smith).

The most numerous of the Francolins on the Zambesi, and found on the higher reaches from Zumbo onward, being especially plentiful in the neighbourhood of that place. This species frequents flat, dusty ground, overgrown with bushes of the cactus plant skirting the river. It is never to be found very far away from water, each flock having its own particular drinking-spot, which is visited every morning and evening as regular as clockwork. In the evening of Dec. 20 we pitched our tent for the night at a spot where a number of these birds were seen. Towards nightfall they became very noisy, constantly running to the crest of the little plateau above our camp to see if we had left, and uttering all the time discordant cries, that resembled those of captured fowls. We had evidently come where the flock was accustomed to seek the river's edge.

An immature female, killed at the end of December, has no chestnut margins to the feathers of the breast and belly, while the secondaries are very much barred and mottled with black.

During the pairing-season the males become very clamorous, giving vent to cries like those of a cock Pheasant as it flies to roost; at other times deep, hoarse croaks that sound very loud in the echoing valleys of the Zambesi. On December 23 we found a nest containing five eggs. It was among weeds, and in a hollow scraped by the bird itself, and lined with dead leaves.

Description of the eggs.—Average measurement 1.5×1.2 inch. Colour pale, dirty green.

In December, when the marpela-grain is sown by the natives, these Francolins do a considerable amount of damage. Land-beetles of all kinds also form one of the principal diets of this species.

Adult. Iris bluish black, soft parts brick-red; upper mandible black, lower brick-red, light horn-colour at tip; legs and feet chocolate-brown. In all our freshly-moulted female specimens, killed in November, the feathers of the chest and belly are very distinctly margined with chestnut. See above.

238. FRANCOLINUS SEPHENA (Smith).

Not common. Of a shy nature, keeping much to the undergrowth of thick woods.

Adult ♂ (Matacania, Nov. 30, 1898). Total length (measured in the flesh) 12.6 inches, wing 6.2. Iris hazel; bill dark brown; legs and feet red. In this specimen the whole of the underparts, together with the lores and superciliary stripe, are shaded with warm buff, becoming stronger on the belly and vent.

Another adult male, with same measurements, obtained at Mesanangue, Aug. 23, 1898, has the superciliary stripe, chin, and throat pure white, the rest of the underparts being only slightly washed with buff.

239. FRANCOLINUS NATALENSIS Smith.

Not common. Found in company with *P. swainsoni*. They keep much to one locality, but if disturbed they will not return to it for several days.

Adult ♀ (Matacania, Nov. 29, 1898). Total length (measured in flesh) 11.6 inches, wing 6. Iris brown; bill coral, soft parts lemon-yellow; legs and feet coral. This bird has a well-developed spur on the left tarsus.

On Aug. 30 we obtained an immature female out of a flock of six birds. Iris hazel; upper mandible dark brown, lower light horn-colour; legs and feet light orange.

240. *NUMIDA MITRATA* Pall.

Gregarious and well distributed along both banks of the river, a flock not unfrequently numbering over 50 birds. Each favoured locality, even islands in mid-stream, has its own particular party. Towards nightfall they proclaim their presence to the traveller on the river by their well-known cries, as they go to seek their favourite watering spot. Hardly a marpela-field that is worth anything escapes their surveillance, the thick woods that generally surround the fields forming strongholds from whence these feathered robbers issue and do much damage to the newly-sown grain.

Towards evening, while paddling through some lofty gorge of the river, one may often catch glimpses of this Guinea-fowl among the high rocks. Amid these wild surroundings the bird looks indeed handsome, with face and neck of bright cobalt-blue. He is the leader of a flock that lies ensconced among the rocks, waiting for his signal to advance down to the water. He has thrown off his habitual stooping gait and stands with helmeted head erect, a feathered warrior, seemingly prepared to dispute every inch of his rocky home.

But he means to do nothing of the sort. On the approach of footsteps he sounds the "alarm," then the "retreat," raspy-throated calls that grate upon the ear, and are taken up by all the other members of the flock, when one and all scuttle pell-mell over the ground, now leaping from rock to rock, now spanning some rocky gorge with a clumsy flight. Although there is no order about their retreat, each bird going its own way, yet it is wonderful with what rapidity they reform into flocks and creep back once more to their old spot after the cause of danger has disappeared. As breeding-time approaches (January, the wet season) the birds pair and come together only when feeding. At that time of the year they rely more than ever upon their running-powers, seldom taking flight in the presence of danger, while in the woods it is next to impossible to put them up. In a game-country, where there are extensive stretches of grass-land enclosed by woods, flocks of these birds may be observed towards evening scattered over its

surface, some far away in the centre, while others, less bold, feed near the confines. They are all peacefully taking their evening meal, but the report of a gun will send them hurrying towards the nearest cover, affording one an opportunity of observing the wonderful running-power of these birds. With rounded backs, and heads and necks craned to the front, they go sprinting along at a rapid pace, only to slacken off on nearing cover, which may be a good quarter of a mile from their feeding-grounds.

Adult (Tete, August 8, 1898). Iris black; bill yellowish horn at tip, base reddish brown; top of head red; neck and sides of face blue, wattles tipped with red; legs and feet dark brown.

An adult female, killed on Jan. 4, had a bright blue patch on the centre of the throat.

241. GUTTERA EDOUARDI (Hartl.).

Of local distribution, and a very difficult bird to obtain. We first became aware of the presence of this species along the river through a captive bird in the possession of a half-caste at Matacania, some 30 miles below Zumbo. He told us that at a certain time of the year, generally after the rains, the birds come down from the hills, with their young ones, to the vicinity of the river, and it is then that the natives are able to capture them; but at other times it is next to impossible to approach them, since they retire to the inaccessible portions of the high hills and the thick woods that clothe their sides.

By nature this bird is far more retiring than the Helmeted Guinea-fowl, and possesses even a greater aptitude for running, seldom making use of flight. We were fortunate enough to obtain two specimens of this species near the river, above Zumbo, while on another occasion, when pitching our tent for the night, we heard a flock close to the water, and not far off another one, but of the Helmeted species (*Numida mitrata*), enabling us to observe to a nicety the difference between the cries of the two species. The call of the former, otherwise the same as that of the latter, was varied now and

again by a tremulous whistle towards nightfall, and kept up long after the evening had closed in.

The Zambesi natives look upon this bird with a certain amount of superstition. Nothing would induce them to eat it, and they told us that its flesh was poisonous. The native name for this species is "Inkankatori," that of the Helmeted bird "Inkanka."

Adult ♂ (sexual organs in breeding condition: Jan. 1, 1899). Iris red; naked skin on head, chin, throat, and neck bluish slate-colour; fold of naked skin at back of neck dirty yellowish white; bill greenish horn-colour; legs and feet slaty horn-colour.

This description was taken directly after the bird had been shot, and there was no sign of red on the throat as described by Mr. Elliot in his Natal specimens (Elliot, Monogr. Phas. ii. pl. 44, 1872).

242. *PTEROCLES BICINCTUS* Temm.

Of local distribution, but in the favoured localities the flocks are large. We first came across this Sand-Grouse just above Tete, beyond which it was fairly numerous, especially at Chishomba. These birds frequent open spots in the woods where the soil is loose and stony, and the slopes of hilly banks that are coated with dried grass. They are fond of basking in the sun, remaining in a sleepy condition during most of the day. When on the ground it is difficult to see them, and one nearly treads upon them before they rise up, startling one almost out of one's wits with their flare of wings and noisy "chuk, chuk" notes, which are given out simultaneously and with great zest. Out of the breeding-season they go together in large batches, sometimes 30 or 40 in one flock. Each of these companies has its own particular locality, from which the birds seldom stray far. In habits they might almost be termed crepuscular. Every evening, as regular as clockwork, and just as dusk is closing in, they wing their way to their watering spots, while, should the night be moonlight, they feed in the vicinity of the water. At Chicowa we happened to pitch our tent in the direct

route of flight of these birds. At evening, always at the same time, they would travel in batches overhead, with a rapid flight towards the river, after a brief time to return the same way as they had come—forming shadows that grew gradually less as they passed into the outer dusk.

During our trek to Chicowa we frequently observed these Sand-Grouse, as we had to cross the sandy dried-up bed of the winding Mesanangue river many times in our route. At one place in particular these birds mustered very strong. It was at a group of pools among boulders of rock in the dried-up bed of the river. Here we stopped for the night. Towards dusk a great pilgrimage of Sand-Grouse visited these precious grails of water. Batch after batch came noiselessly down and formed themselves into dense little crowds by the water. At the approach of a native they would all rise up with a prolonged round of their startling cries and disappear into the gloom down the watercourse with the silence of Bats, but only to return after a short space and drop down again to the water like a shower of spent bullets. As the moon rose, they commenced to feed, and remained at the pools throughout the night, leaving as soon as dawn appeared.

On August 15 we obtained a female with ovaries fully developed. As the breeding-season approaches, the flocks split up, and the pairs scatter over a considerable area of country.

Adult ♂ (Mesanangue, August 26, 1898). Total length (measured in the flesh) 9·8 inches, wing 7. Iris dark brown; bill brownish black, at gape yellow; eyelids, naked skin round eye yellow; feet brown.

Adult ♀ (Mesanangue, August 14, 1898). Total length (measured in the flesh) 9·9 inches, wing 6·5. Coloration as in male.

243. BALEARICA REGULORUM (Bennett).

Balearica chrysopelargus, Sharpe, Cat. Birds, xxiii. p. 274.

A party of three alighted on the river near Zumbo on December 2. An individual was observed in captivity at Matacania.

244. PHYLLOPEZUS AFRICANUS (Gm.).

Inhabits the vicinity of pools in dried-up watercourses. Always found in pairs. It is by no means shy, and allows of a close approach. In the breeding-season they become very demonstrative, the male continually chasing the female from one side of the pool to the other, and uttering the whole time a series of hoarse guttural notes. The flight is weak, the long legs being dropped, which gives a very clumsy appearance to the bird.

Adult ♂. Total length (measured in the flesh) 10 inches, wing 7. Iris bluish black; frontal shield and bill bluish lead-colour; legs and feet lead-colour.

Adult ♀. Total length (measured in the flesh) 10·6 inches, wing 7·6. Colours as in male.

This last specimen was obtained on Oct. 17, and had sexual organs in breeding condition.

Immature birds with white breasts were also obtained about the same time. It is probable that these birds do not assume the adult plumage till the second year. In immature individuals the iris is brown, the legs and feet brownish green.

245. LOBIVANELUS ALBICEPS (Gould).

First observed near Senna on July 22. This bird is found in pairs here and there along the river, haunting the margin of the water where the banks are gently sloping and of a sandy nature. At one's approach these Plovers jump up in a spasmodic manner, as if their very souls had been startled, to fly out low across the water in a circuitous flight, in order to regain the bank further ahead. When startled they are noisy birds, uttering their plaintive but not unmusical "whit," "whit," repeated rapidly in succession, and they will often set up these cries for no apparent reason whatever, obliging the feeding Water-hen (*Limnocorax niger*) to take quickly to the shelter of the reeds, and causing the neighbouring wild-fowl much uneasiness. They seem to take a delight in giving alarm on the slightest provocation. They are often to be found at some distance from water, haunting

the sandy stretches of a dried-up river-bed or moist spots where the grass is short and succulent. In such places a small party may regularly be observed towards evening fully occupied in "drawing" worms. On August 1st we came across, on a piece of waste land, a pair that had evidently a nest, judging by the anxiety displayed by the birds, the male running to and fro at the top of its speed, that was broken now and again by sharp halts, while the female feigned continually a broken leg, the bird looking inexpressibly comic as it jolted along over the rough ground on one long leg.

The flight of this species is strong and buoyant, with a steady beat of wings.

At dusk these Spur-winged Plovers become very noisy with their plaintive "whits," while they are often to be heard throughout a moonlight night calling fitfully one to another, their cries at times seeming almost panic-stricken in tone, as if they saw evil spirits walking abroad.

Adult (Aug. 3, 1898, near Tete). Iris lemon-yellow; fore part of bill black, basal half yellow; lappets yellow, marked at their bases on inner side with black; legs and feet pale green. In old males the bluish grey of the cheeks, sides of face, and neck becomes considerably darker in colour.

The southernmost range of this species is the Zambesi river.

246. *LOBIVANELLUS LATERALIS* (Smith).

Not common along the river, but now and again observed.

247. *HOPLOPTERUS SPECIOSUS* (Licht.).

An uncommon migrant to the Zambesi. On November 22, after a storm, a large party suddenly appeared near Zumbo. We obtained two pairs.

The note of this species, when flushed, is a sharp discordant "click, click," repeated several times.

248. *CHARADRIUS PALLIDUS* Strickl.

Well distributed, especially in the dry season (June to December), when the river becomes in places a mass of sand-banks. We found nests on several occasions, one containing three eggs which were well incubated on Sept. 17th at

Chicowa; while the discovery of another nest subsequently enabled us to observe a remarkable example of breeding economy on the part of this Plover. The following extracts from my note-book will explain this:—

“*Sept. 27.* Chicowa flats. Landed on a large island of sand in mid-stream to take up quarters and wait for arrival of paddlers to expedite further journey up river. Heat intense; thermometer in our tent registered to-day 118°. Belts of beautiful shady trees on the opposite bank of the river to gaze at.

“*Oct. 9.* At breakfast to-day Ramm mentioned that he had found a Kentish Plover's nest not 300 yards from our tent. . . . Went and inspected the nest. There were three eggs, covered over with sand, and so carefully that, had it not been for the maze of footprints round it, discovery would have been impossible.

“*Oct. 11.* Ramm told me to-day that he could never observe the Plovers near the nest; the eggs seemed always to be covered up. In the afternoon I went to the nest: eggs covered up, the pair of birds feeding at the end of the island. For the first time it suddenly occurred to me: Might it not be possible that incubation is brought about throughout the day by the sun acting on the sand which covered up the eggs? Shall watch this nest more closely in future.

“*Oct. 12.* 5.30 A.M.: female bird ran from the nest; eggs warm. About 10 o'clock, eggs covered up; about 3, eggs ditto.

“*Oct. 13.* Heat intense. 8 o'clock, eggs covered up. I lay down on the sand as flat as I could, with my glasses, in order to watch the two Plovers. After some time of searching, I discovered one of them feeding at the water's edge some way off on my left. Soon it ran on to the sand and suddenly squatted down, and remained still for a long time, its body looking like an excrescence on the flat muddy sand, an object easy to lose sight of, but I marked it by a small piece of drift-wood not far off. I watched this bird for over half an hour, but it never moved; so, tired of waiting any longer, my legs being terribly 'rawed' by the sun, I

moved and walked towards it. The bird got up and ran. It had been sitting in a slight depression in the muddy sand. This accounts for their breast-feathers becoming so stained. These birds seem to revel in the heat. When other birds have left for the shade these Plovers keep to the hot sand-banks. . . . 12 o'clock, eggs covered.

"Oct. 14. 8 A.M., eggs covered up, as usual. Mid-day, ditto. About 3.30, the two birds observed for the first time close to the nest; a Gull sweeping overhead was probably the reason.

"Oct. 15. Before leaving, about 11 o'clock, I went to look for the last time at the nest. The eggs were covered up. . . . Broke one of them; it was well incubated.

"*Description of the eggs.*—Ground-colour pale buffish brown, minutely spotted and streaked all over with reddish brown, with faint underlying markings of a purplish colour. Average measurements 1.015 × .088 inch."

249. OXYECHUS TRICOLLARIS (Vieill.).

This elegant little Plover is by no means common on the Zambesi, not being found beyond Zumbo. On August 17, at Mesanangue, we found a nest on sand between rocks close to the water. It contained three young ones in down. The parents kept flying round them, uttering the whole time the shrill "wick, wick" note of the Sanderling. Towards evening a plaintive whistle is often resorted to. At the beginning of December the young were abroad, frequenting stagnant pools off the river in small parties.

Adult (Aug. 3, 1898). Iris light lemon-yellow; eyelids coral-red; bill flesh-colour at base, black at fore part; legs and feet flesh-colour.

In the immature bird the feathers of the upper parts are edged with buffish white, while the collars on the nape and upper mantle are absent. The iris is black.

250. TOTANUS CANESCENS (Gm.).

An adult male in winter plumage obtained near Tete, Aug. 18, 1898.

251. *TOTANUS GLAREOLA* (Linn.).

First observed on Aug. 24, becoming more numerous in November. When walking this species has the same habit of flirting its tail up and down as the Common Sandpiper.

Adult. Iris brown; legs and feet brownish green.

On Sept. 13 we obtained a specimen in worn breeding-plumage.

252. *TRINGOIDES HYPOLEUCUS* (Linn.).

Common. First obtained on August 24.

253. *NUMENIUS ARQUATA* (Linn.).

The well-known whistle of the Curlew was heard on October 3.

254. *RHYNCHÆA CAPENSIS* (Linn.).

By no means common, frequenting the muddy portions of the pools near the river. It is not a shy bird, flying low over the ground to alight a few paces further ahead, where it commences to flirt its tail up and down, after the manner of the Sandpipers. It feeds chiefly at dusk.

Adult ♂ (Dec. 1, 1898). Organs in breeding-condition. Iris brown; bill brown; legs and feet greenish.

Our three specimens are all males.

255. *HIMANTOPUS CANDIDUS* Bonnat.

The Black-winged Stilt was occasionally observed in pairs on sandspits in the river.

256. *RHINOPTILUS CHALCOPTERUS* (Temm.).

It is somewhat difficult, when examining the series of this species and of its near ally, *R. albofasciatus* (Sharpe), to decide as to the validity of the latter species. From the increased material now at hand it certainly may be questioned. The peculiar characteristics of *R. albofasciatus* are—(1) the white bar down the wing, formed by the broad white margins of the greater wing-coverts; (2) the dull bronzy green, scarcely purple, ends of the quills; (3) the absence of the white band at the tip of the tail-feathers. (Sharpe, Cat. B. Brit. Mus. xxiv. p. 50.) Among the series of *R. albofasciatus*

in the British Museum there are three specimens, all females by dissection, but none, however, are quite fully adult:—

b. ♀. Colenso, Natal, Nov. 20. White on the greater wing-coverts well defined; no white on tail, tips of the feathers of the latter slightly edged with pale rufous.

d. ♀. Transvaal (*T. Ayres*). White on wing-coverts less well defined; no white on tail, but slightly edged with pale rufous.

c. Immature ♀. Potchefstroom, Jan. 21 (*T. Ayres*). Little or no white on wing-coverts; tail-feathers edged and mottled with sandy rufous.

The following specimen is unsexed, but is without doubt a female:—

a. Natal (*T. Ayres*). No white on wing-coverts; no white on tail, latter edged with sandy rufous.

In the same series there is a very interesting bird, an immature male:—

e. ♂ *imm. sk.* Ondonga, Jan. 22 (*Andersson*).

This bird has the typical white wing-band, and is identical with the Colenso specimen, with the exception of the tail-feathers; several of these are clearly in the process of becoming tipped with white, while others are tipped with pale rufous. This last specimen therefore shows that the absence of the white band on the tail-feathers of *R. albofasciatus* is of no value as distinguishing it from its near ally.

I find that the amount of white on the greater wing-coverts in the specimens of both species varies considerably *inter se*. An adult specimen of *R. chalconotus* from Damara-land, Feb. 3 (*C. J. Andersson*), has quite as much white on the wing-coverts as the Colenso specimen of *R. albofasciatus*, while in the other adult examples from Nyasaland the white is not so conspicuous, much having disappeared through abrasion.

I am of opinion that Dr. Sharpe's description of *R. albofasciatus* will be found to be that of the female of *R. chalconotus*, the absence of the white band on the tail-feathers and the less brightly coloured quills being the characteristics of the female.

The correct sexing of specimens in the case of these two species will therefore be of vital importance. I am well aware that there are two sexed females of *R. chalcopterus* with white on the tail-feathers in the British Museum:—
c. Adult ♀, Damaraland (*C. J. Andersson*), Feb. 3. (This bird, as already pointed out, has quite as much white on the wing-coverts as typical examples of *R. albofasciatus*.)
f. Adult ♀, Lake Shirwa (Jan. 1, *A. Whyte*). On the other hand, it must not be forgotten that all the female specimens of *R. albofasciatus* in the British Museum have no white on the tails, which we have proved to be present in the males.

The breeding-season is in October, since there is an adult specimen of *R. chalcopterus* obtained off the nest Oct. 28, 1895, at Henga, near Deep Bay, Nyasa.

The two above-mentioned specimens from Damaraland and Lake Shirwa were therefore obtained in the non-breeding season. At that time ascertainment of the sex in many cases is very difficult, and we have found by experience that if the utmost care is not taken an error can easily be made.

We obtained two specimens, a fully adult male and female, near Senna, and practically in the same locality; these are referred for the present to *R. chalcopterus*:—

Adult ♂ (near Senna, July 27, 1898). Upper parts clear brown; greater wing-coverts banded with white; tail tipped with white; iris black; eyelids red; bill black, red at gape and base of lower mandible; legs and feet brick-red.

Adult ♀ (near Senna, Aug. 4, 1898). Wing-coverts banded with white; quills less bright than in male; tail uniform brown.

In the figures of *R. chalcopterus* and *R. albofasciatus* (*Cat.* xxiv. pl. iv.) the chin and throat are given as white. In fully adult birds the feathers of these parts are brown, varied with black.

257. GLAREOLA PRATINCOLA (Linn.).

Three adults obtained, the last specimen at Chishomba, Oct. 29, 1898. This species resorted to the sandbanks in

small flocks. The white rump is very conspicuous in flight. Note like that of the Lesser Tern.

Adult (Senna, July 25, 1898). Iris blue; eyelids coral-red; bill black, coral-red at base; legs and feet dark brown.

258. *GLAREOLA EMINI* Shelley.

This species, which is represented in the British Museum by the type obtained by Emin Pasha at Foda in Equatorial Africa, is distributed in small colonies along the river above Tete. Small islands of sand interspersed with rock are favourite resorts. On the smooth portions of the rocks these graceful little birds were to be observed throughout the day in squatting positions basking in the heat of the sun. They evince little fear, and if driven from their retreat they fly away for a short distance, to return again and alight on the rocks, like so many Swallows, uttering all the time a series of faint notes, which might be described by the syllables "kip-kip," rapidly repeated. During a shower of rain these birds would congregate into small flocks and fly to and fro above the water, making a great noise, and all the time busy catching insects. In flight the white of the upper tail-coverts is very conspicuous.

Adult (Mesanangue, Aug. 27, 1898). Iris brown; front portion of bill black, basal portion and gape coral-red; legs and feet coral-red.

Four specimens obtained, the last at Zumbo, Nov. 9, 1898.

XXV.—*Descriptions of some new or rare Eggs of Australian Birds.* By D. LE SOUËF, of Melbourne, C.M.Z.S.

1. *MICRÆCA ASSIMILIS* Gould. (Lesser Brown Flycatcher.)

This interesting little bird is found in the western portion of Australia from north to south, but it is nowhere very plentiful. It has a sweet note and is far from being shy. I noticed it on two occasions near York, in Western Australia. Its small compact nest was found near Katanning, Western Australia, during the latter part of October. It was situated on a fork near the end of a horizontal branch, and measured